

AMENDMENTS TO THE CLAIMS

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Claim 1 (currently amended) A printer comprising:

- 5 a housing;
a track installed within the housing;
a carriage moveably installed on the track;
a print head installed on the carriage for ejecting ink onto a medium;
a position detecting mechanism comprising a first portion installed at a
10 calibration position neighboring the track, and a second portion installed on
the carriage; and
control circuitry for controlling operations of the printer and recording the
calibration position at the track, the control circuitry comprising a counter
for recording a counted position of the second portion of the position
detecting mechanism;
15 wherein the calibration position is within a range which the print head is capable
of printing the medium, and the second portion is capable of passing by the
first portion when the print head simultaneously ejects ink onto the medium;
wherein when printing the medium, if a difference between the position of the
second portion corresponding to the track recorded by the counter and the
20 position of the calibration position at the track recorded by the control
circuitry is within a first predetermined range, the control circuitry does not
need to calibrate the position of the carriage.

25 Claim 2 (original) The printer of claim 1 wherein the second portion comprises a
light source and a light sensor installed on the carriage, the first portion
comprising a shield installed on the housing for shielding light transmitted from
the light source to the light sensor.

30 Claim 3 (previously amended) The printer of claim 2 wherein a first edge of the
shield corresponds to a first calibration position; and when the light source and
the light sensor on the carriage move to the first calibration position which the
shield starts to shield the light transmitted from the light source to the light sensor,

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the control circuitry will compare the position of the light source and the light sensor corresponding to the track counted by the counter with the first calibration position recorded by the control circuitry to obtain a first difference of the two positions;

- 5 wherein a second edge of the shield corresponds to a second calibration position; and when the light source and the light sensor on the carriage move to the second calibration position which the light sensor starts to receive the light transmitted from the light source again, the control circuitry will compare the position of the light source and the light sensor corresponding to the track counted by the
- 10 counter with the second calibration position recorded by the control circuitry to obtain a second difference of the two positions.

Claim 4 (cancelled).

- 15 Claim 5 (original) The printer of claim 1 wherein the first portion comprises a light source and a light sensor installed on the housing, the second portion comprising a shield installed on the carriage for shielding light transmitted from the light source to the light sensor.
- 20 Claim 6 (original) The printer of claim 5 wherein the light source and the light sensor correspond to the calibration position of the track; and when a first edge of the shield moves to a position which the shield starts to shield the light transmitted from the light source to the light sensor, the control circuitry will compare the position of the first edge of the shield corresponding to the track counted by the
- 25 counter with the calibration position recorded by the control circuitry to obtain a difference of the two positions.

- 30 Claim 7 (original) The printer of claim 5 wherein the light source and the light sensor correspond to the calibration position of the track; and when a second edge of the shield moves to a position which the light sensor starts to receive the light transmitted from the light source again, the control circuitry will compare the position of the second edge of the shield corresponding to the track counted by

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and

the count r with the calibration position recorded by the control circuitry to obtain a difference of the two positions.

Claim 8 (cancelled).

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Claim 9 (currently amended) The printer of ~~claim 8~~ claim 1 wherein when printing the medium, if the difference between the position of the second portion corresponding to the track recorded by the counter and the position of the calibration position at the track recorded by the control circuitry is between the first predetermined range and a second predetermined range, the control circuitry will calibrate the position of the carriage after the medium is printed.

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Claim 10 (original) The printer of claim 9 wherein when printing the medium, if the difference between the position of the second portion corresponding to the track recorded by the counter and the position of the calibration position at the track recorded by the control circuitry is greater than the second predetermined range, the control circuitry will instantly stop printing the medium to calibrate the position of the carriage.

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Claim 11 (original) The printer of claim 1 further comprising a step motor for driving the carriage wherein the counter counts rotational steps of the step motor to record the position of the second portion corresponding to the track.

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Claim 12 (original) The printer of claim 1 further comprising:

a DC motor for driving the carriage;
an optical ruler installed on the housing;
a light source installed on the carriage for emitting light toward the optical ruler;
and

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a light sensor for detecting the light emitted by the light source through the optical ruler and generating corresponding position signals;
wherein the counter uses the position signals generated by the light sensor to record the position of the second portion corresponding to the track.

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Claims 13-15 (cancelled).

Claim 16 (new) A printer comprising:

- 5 a housing;
 a track installed within the housing;
 a carriage moveably installed on the track;
 a print head installed on the carriage for ejecting ink onto a medium;
 a position detecting mechanism comprising a first portion and a second portion,
10 the second portion comprising a signal source and a signal sensor installed
 on the carriage, the first portion comprising a shield installed on the housing,
 the shield comprising a first edge and a second edge, the first edge
 corresponding to a first calibration position, and the second edge
 corresponding to a second calibration position; and
15 control circuitry for controlling operations of the printer and for recording the
 first and the second calibration positions at the track, the control circuitry
 comprising a counter for recording a counted position of the first and
 second portions;
 wherein when the carriage moves to the first calibration position where the shield
20 starts to block the signal transmitted from the signal source to the signal
 sensor, the control circuitry compares the position of the carriage counted by
 the counter with the first calibration position recorded by the control
 circuitry to obtain a first difference of the two positions;
 wherein when the carriage moves to the second calibration position where the
25 signal sensor starts to receive the signal transmitted from the signal source
 again, the control circuitry compares the position of the carriage counted by
 the counter with the second calibration position recorded by the control
 circuitry to obtain a second difference of the two positions;
 wherein both the first calibration position and the second calibration position are
30 within a range in which the print head is capable of printing the medium,
 and the second portion is capable of passing by the first portion when the
 print head simultaneously ejects ink onto the medium.

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Claim 17 (new) The printer of claim 16 wherein the signal source is a light source and the signal sensor is a light sensor.

5 Claim 18 (new) A printer comprising:

a housing;

a track installed within the housing;

a carriage moveably installed on the track;

a print head installed on the carriage for ejecting ink onto a medium;

10 a position detecting mechanism comprising a first portion and a second portion, the second portion comprising a signal source and a signal sensor installed on the housing, the first portion comprising a shield installed on the carriage, and the shield comprising a first edge and a second edge; and

15 control circuitry for controlling operations of the printer, the control circuitry comprising a counter for recording a first calibration position where the shield starts to block the signal transmitted from the signal source to the signal sensor, and a second calibration position where the signal sensor starts to receive the signal transmitted from the signal source again;

20 wherein when the carriage moves to the first calibration position, the control circuitry compares the position of the carriage counted by the counter with the first calibration position recorded by the control circuitry to obtain a first difference of the two positions;

25 wherein when the carriage moves to the second calibration position, the control circuitry compares the position of the carriage counted by the counter with the second calibration position recorded by the control circuitry to obtain a second difference of the two positions;

30 wherein both the first calibration position and the second calibration position are within a range in which the print head is capable of printing the medium, and the second portion is capable of passing by the first portion when the print head simultaneously ejects ink onto the medium.

Claim 19 (new) The printer of claim 18 wherein the signal source is a light source and

the signal sensor is a light sensor.

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